

### REMARKS

Claims 1-8 are pending in the application. Claim 1 has been amended by the present amendment. The amendment is fully supported by the application as originally filed.

In the Office Action Summary, a box was checked off to indicate drawing objections. However, there is no discussion in the Office Action of any drawing objections. It is believed that this box was inadvertently checked off. In our response filed on August 2, 2005, Applicant addressed and overcame the previous drawing objections.

The specification has been amended on page 10, last paragraph to correct reference numbers and grammar. No new matter is added.

As amended, claim 1 recites that the heat sink includes at least one hollow part for releasing thermal stresses, where **the at least one hollow part remains hollow** (see, e.g., FIGS. 4b and 6b of the application; specification at page 9, line 24 to page 10, line 3; and page 11, lines 17-20).

As described on page 10, line 17 to page 11, line 4 of the application, in a temperature-increasing environment, the heat sink 34 expands to a greater extent than a first chip 32 and a semiconductor package 33, which may lead to deformation or warpage of the heat sink 34. The hollow parts 34a can alleviate this undesirable deformation or warpage of the heat sink 34 by releasing thermal stresses from the heat sink 34, such that "the heat sink 34 with the stress-releasing hollow parts 34a can maintain intact in structure" (specification at page 11, lines 1-4). As the thermal stresses can be released through the hollow part of the heat sink, delamination, cracking, and warpage can be prevented (see page 7, lines 3-7).

Claims 1-4 and 6-8 were rejected under 35 USC 103(a) as being unpatentable over "Admitted Prior Art (APA), figures 1-3" in view of U.S. Patent 6,469,897 to Ho et al. ("Ho"). Claim 5 was rejected under 35 USC 103(a) as being unpatentable over "APA" in view of Ho, and

further in view of U.S. Patent 5,598,033 to Behlen et al. These rejections are respectfully traversed.

The proposed combination of APA in view of Ho does not teach or suggest a multi-chip package device with a heat sink, including at least one hollow part for releasing thermal stresses, where **the at least one hollow part remains hollow**.

As indicated in the Final Office Action: "APA does not explicitly teach that at least one hollow part extending through the heat sink is formed at an area of the heat sink free of contact with the first chip and the semiconductor package to release thermal stresses from the heat sink" (page 3, second paragraph).

In the Final Office Action, Ho was cited for allegedly teaching "a heat sink 220 (fig. 2D) with a through-hole 222 (fig. 2B)" (see page 3, third paragraph).

However, in Ho, reference number 222 corresponds to a "heat-sink via hole." The heat-sink via hole 222 is formed in the heat sink 220 "at a predefined location aligned to each grounding solder-ball pad 241" (column 3, lines 46-49).

In contrast, according to the Applicant's claimed invention, the hollow part is formed at an area of the heat sink free of contact with the first chip and the semiconductor package.

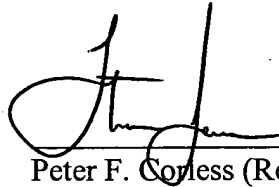
Referring to column 4, lines 6-13 of Ho, an electrically-conductive material (solder or silver epoxy) is filled into the heat-sink via hole 222 to form a grounding plug 260 "serving to electrically connect the heat sink 220 to the grounding solder-ball pad 241." In Ho, the grounding plug 260 is filled with the electrically-conductive material.

Ho does not teach or suggest at least one hollow part of a heat sink for releasing thermal stresses, where **the at least one hollow part remains hollow**.

For at least the reasons discussed above, it would not be possible to modify "APA" with Ho to somehow produce the Applicant's claimed invention.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,



---

Peter F. Corless (Reg. No. 33,860)  
Steven M. Jensen (Reg. No. 42,693)  
Edwards Angell Palmer & Dodge  
P.O. Box 55874  
Boston, MA 02205

Date: January 13, 2006

Phone: (617) 439-4444

Customer No. 21874